202306UECM3463OE3a

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Review of preview

Started on	Friday, 25 August 2023, 07:35 PM
Completed on	Friday, 25 August 2023, 07:37 PM
Time taken	1 min 6 secs
Grade	**0** out of a maximum of 10 (**0**%)

1
Marks: 1

The number of claims in a period has a Binomial distribution with parameters m = 5 and q = 0.54. The amount of each claim X follows P(X = x) = 0.25, x =1, 2, 3, 4. The number of claims and claim amounts are independent. S is the aggregate claim amount in the period. Calculate $F_S(4)$. _____

Answer:

Make comment or override grade

Incorrect
Correct answer: 0.315604
Marks for this submission: 0/1.

2
Marks: 1

The number of claims in a period has a geometric distribution with mean 5.00. The amount of each claim is distributed as follows

Claim Amounts, X	0	1	2	3	4
Probability	0.32	0.31	0.19	0.12	0.06

The number of claims and claim amounts are independent. S is the aggregate claim amount in the period. Calculate $F_S(3)$. _____

Answer:

Make comment or override grade

Incorrect
Correct answer: 0.460108
Marks for this submission: 0/1.

3
Marks: 1

- Customers arrive in a store at a Poisson rate of 0.39 per minute.
- The amount of profit the store makes on each customer is randomly distributed as follows:

Profit	0	1	2	3
Probability	0.42	0.30	0.15	0.13

Determine the probability of making 3 profit in 10 minutes. _____

Answer:

Make comment or override grade

Incorrect
Correct answer: 0.151879
Marks for this submission: 0/1.

4
Marks: 1

Claim counts and sizes on an insurance coverage are independent and have the following distribution:

Number of claims	Probability
0	0.64
1	0.18
2	0.18

Claim Size

Probability	
200	0.33
400	0.31
600	0.31
900	0.05

Let S be the aggregate claims. Calculate $F_S(600)$. _____

Answer: ✗

Make comment or override grade

Incorrect
Correct answer: 0.86743
Marks for this submission: 0/1.

5
Marks: 1

The number of claims on an insurance coverage follows a zero modified Poisson distribution with mean $\lambda = 5$ and $p_0^M = 0.38$. The size of each claim has the following distribution:

Claim Size, x	0	3	6	9
Probability, P(X = x)	0.51	0.2	0.05	0.24

Calculate the probability of aggregate claims of 9 or more. _____

Answer: ✗

Make comment or override grade

Incorrect
Correct answer: 0.476
Marks for this submission: 0/1.

6
Marks: 1

The number of claims has a Poisson distribution with mean $\lambda = 2.7$. The distribution of the amount of claims(in thousand) is

Amount of claims	1	2	3	4	5	6
Probability	0.17	0.31	0.16	0.08	0.06	0.22

The number of claims and the amount of claims are independent. Determine the expected total amount of claims given that at least 4 thousand have been claimed. _____

Answer: ✗

Make comment or override grade

Incorrect
Correct answer: 10.6577
Marks for this submission: 0/1.

7
Marks: 1

For an insurance coverage, you are given:

- Claim frequency (N^M), before application of deductibles, follows a zero modified geometric distribution with parameters $\beta = 10$ and $P(N^M = 0) = 0.65$.
- Claim size (X^M), before application of deductibles, follows a zero modified Poisson distribution with parameters $\lambda = 2$ and $P(X^M = 0) = 0.54$.
- Claim frequency and claim size are independent.
- There is a deductible of 3 per loss.

Calculate the probability number of payments being greater than 8 times 1000, i.e. calculate $1000P(N^P > 8)$. _____

Answer: ✗

Make comment or override grade

Incorrect
Correct answer: 0.200935
Marks for this submission: 0/1.

8

Marks: 1

Losses follow a compound distribution with both frequency and severity having discrete distribution.\ For frequency

$$P_N(z) = 0.39 + 0.61[(1+0.79(z-1))^8-(1-0.79)^8]/[1-(1-0.79)^8$$

For Severity

$$P_X(z) = 0.46 + 0.29z + 0.21z^2 + 0.03z^3 + 0.01z^4$$

Calculate the probability that aggregate losses is exactly 3. _____

Answer:

Make comment or override grade

Incorrect
Correct answer: 0.074
Marks for this submission: 0/1.

9

Marks: 1

For insurance coverage, you are given:

- The number of claims for each insured follows a Binomial distribution with parameters m = 8 and q.
- q varies by insured according to beta distribution with parameters a = 14 and b = 3
- Claim size, before application to claims limits, follows a gamma distribution with parameters α = 4, θ = 920.
- Coverage is subject to claim limit of 1,950.
- Number of claims and claim sizes are independent.

Calculate the probability that aggregate losses will be greater than 2,456, using the normal approximation. _____

Answer:

Make comment or override grade

Incorrect
Correct answer: 0.999968
Marks for this submission: 0/1.

10

Marks: 1

You are given:

- The number of claims for each insured follows a Poisson distribution with mean 3.
- Claim size, follows a Gamma distribution with parameters α = 4, θ = 880.
- Number of claims and claim sizes are independent.

Derive the formula for the skewness of the aggregate losses and then calculate the skewness. _____

Answer:

Make comment or override grade

Incorrect
Correct answer: 0.774597
Marks for this submission: 0/1.